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Rodica Peia

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EXAMINER

MYERS, JESSICA L

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/597,045	Applicant(s) PEIA, RODICA	
	Examiner JESSICA L. MYERS	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/10/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/10/2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/10/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “soft ferromagnetic tube,” the tube’s “one recess,” and the “plastic extending into the interior of the tube” disclosed in claims 8-11 must be shown or the feature(s) canceled from the claim(s). The tube (52) that is shown in the drawings is disclosed to be a metal bushing in the specification, not a ferromagnetic tube. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 10 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 10 and 11 make note of a recess in the tube (52) through which plastic of the coil former extends so that the plastic coil former can also serve as a bearing. However, the recess and plastic extending portion are not shown in the drawing or described in the specification, so it is unclear where they would be located, especially since the shaft fills most of the tube (52).

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 16, 17, 18, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 2005/0098641 to Ardelt et al. (Ardelt et al.).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

In Reference to Claim 1

Ardelt et al. teach a mini-fan having

a housing (lower housing part (22) and upper housing part (24)) defining an air inlet opening (inlet opening (58));

a fan wheel (external rotor (46) with attached fan blades (56)) equipped with fan blades for pulling air in through said air inlet opening;

an electrical drive motor (including internal stator (30) and external rotor (46)) for driving that fan wheel, said drive motor including

a permanent-magnet external rotor (rotor (46) with rotor cup (48) having permanent magnets (50));

an internal stator (30), having sheet-metal pole pieces formed with claw poles which interdigitate with each other (claw poles (32 and 34) each have two vertical sections that interdigitate with each other, see figure 5), and

a coil former located between said pole pieces and having a central portion connecting two mutually opposed side pieces (coils (36 and 38) have a central annular shaft (52) and a sintered bearing (28) running centrally through them that serve to connect claw pole (32) to carrier (40)), wherein at least one of said side pieces serves as a carrier for electrical components of said drive motor.

In Reference to Claim 16

Ardelt et al. teach the mini-fan according to claim 1 (see the rejection of claim 1 above), wherein a temperature sensor (NTC resistor (86) is used to sense temperature, see figure 6) is provided; and conductors (182' and 182'') leading to the temperature sensor are applied onto housing portion (The conductors are applied onto a circuit board (185) which serves as the top of the housing) of said fan using a hot-stamping method. Regarding the limitation that the conductors are hot stamped, the method of forming the device is not germane to the issue of patentability of the device itself and therefore, this limitation has not been given patentable weight.

In Reference to Claim 17

Ardelt et al. teach the mini-fan according to claim 1 (see the rejection of claim 1 above), wherein the fan blades extend substantially parallel to the rotation axis of the mini-fan (the fan blades (56) are arranged in a vertical direction (see figure 5) running parallel to the shaft (52) upon which the fan rotates).

In Reference to Claim 18

Ardelt et al. teach the mini-fan according to claim 1 (see the rejection of claim 1 above), wherein said housing has at least one lateral air outlet opening (the housing has two lateral openings (60) as shown in figure 5).

In Reference to Claim 19

Ardelt et al. teach the mini-fan according to claim 1 (see the rejection of claim 1 above), further comprising mounting feet (pegs (78) serve to attach the housing of the fan to a circuit board (68)) that also serve, at least in part, for electrical connection of the fan (The pegs serve to mount the circuit board to the fan, and in that sense provide a means for securing two electrically connected parts together.).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,013,966 to Fehrenbacher et al. (Fehrenbacher et al.).

In Reference to Claim 1

Fehrenbacher et al. teach a mini-fan having

a housing (housing (10)) defining an air inlet opening (axial intake opening (38));

a fan wheel (rotor (6)) equipped with fan blades (radially arranged vanes (36)) for pulling air in through said air inlet opening;

an electrical drive motor (including permanent magnet rotor (6) and stator (14))
for driving that fan wheel, said drive motor including

a permanent-magnet external rotor (6);

an internal stator (stator (14)), having sheet-metal pole pieces formed with claw
poles which interdigitate with each other (claw poles (20) are made from a sheet of
nickel alloy and have two vertical sections that interdigitate when assembled, see
column 3 lines 1-38), and

a coil former (coil support (50), see figure 5) located between said pole pieces
(see figure 1) and having a central portion connecting two mutually opposed side pieces
(the coil support has a central annular member that connects two flat plate members on
the top and bottom of the coils), wherein at least one of said side pieces serves as a
carrier for electrical components of said drive motor (the bottom member carries the coil
electrical wire ends (52)).

In Reference to Claim 21

Fehrenbacher et al. teach the mini-fan according to claim 1 (see the rejection of
claim 1 above), wherein a housing part (pocket-like receiving elements (12) formed in
housing (10)), in which at least one permanent magnet (positioning magnet (8)) is
mounted by plastic injection molding, is provided adjacent the rotor (the positioning
magnets are radially adjacent to the rotor). As for the limitation that the part be injection
molded, the method of forming the device is not germane to the issue of patentability of
the device itself and therefore, this limitation has not been given patentable weight.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-11, 20, and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Fehrenbacher et al. in view of U.S. Patent Application Publication 2003/0057799 to Ohiwa et al. (Ohiwa et al.).

In Reference to Claim 2

Fehrenbacher et al. teach the mini-fan according to claim 1 (see the rejection of claim 1 above), but does not teach that the carrier is formed with orifices for insertion of the claw poles of the pole piece adjacent to it, since the claw poles surround the plastic piece that makes up the coil support (50).

Ohiwa et al. teach a motor having a winding (8) fixed onto a printed wiring board (11) (see figure 1). The winding and printed wiring board are enclosed by two claw poles (5 and 6), and the wiring board is formed with cutout portions (apparently (26)) so that the bottom claw pole can penetrate the printed circuit board (11) in order to encircle the winding (8) (see figure 3 where the claw pole penetrates the circuit board). It would have been obvious to one of ordinary skill in the art at the time of invention to form the carrier of Fehrenbacher et al. with insertion orifices for one of the claw poles as taught by Ohiwa et al. in order to make the wiring assembly/circuit board of Fehrenbacher et al. larger in diameter than the claw pole. This would allow more electrical components to

be placed on the carrier, and would ensure that the claw poles were of the proper size regardless of the size of the carrier.

In Reference to Claim 3

Fehrenbacher et al. as modified by Ohiwa et al. teach the mini-fan according to claim 2 (see the rejection of claim 2 above), wherein at least the pole piece adjacent to the carrier is equipped, at least locally, with a plastic part that is fixedly bound to the carrier (When Fehrenbacher et al. is modified by Ohiwa et al., the lower pole piece would be inserted into orifices formed in the plastic carrier of Fehrenbacher et al. (see column 4 lines 53-61 of Fehrenbacher et al.). Thus the lower pole piece would be equipped with the plastic carrier in the sense that it supports and holds it.).

In Reference to Claim 4

Fehrenbacher et al. as modified by Ohiwa et al. teach the mini-fan according to claim 3 (see the rejection of claim 3 above), wherein the plastic part extends into a region between two adjacent claw poles (The center of the plastic coil support (50) of Fehrenbacher et al. is surrounded by the claw poles in a manner similar to that shown in figure 1 of Ohiwa et al.).

In Reference to Claim 5

Fehrenbacher et al. as modified by Ohiwa et al. teach the mini-fan according to claim 3 (see the rejection of claim 3 above), wherein the plastic part is equipped (In the apparatus of Fehrenbacher et al. as modified by Ohiwa et al., the inner portion of the lower plate of the plastic coil support would be use to support the coil, while the outer portion would be used primarily as a carrier for the electronic components. There is a

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projection between these two regions which is formed in between the cutout portions, see figure 1 of Ohiwa et al.), on its side adjacent to the carrier, with a projection, which projection is welded to the carrier (The non-cutout projection portion serves to connect the plastic coil support to the carrier). As for the limitation that the parts be welded together, the method of forming the device is not germane to the issue of patentability of the device itself and therefore, this limitation has not been given patentable weight.

In Reference to Claim 6

Fehrenbacher et al. as modified by Ohiwa et al. teach the mini-fan according to claim 3 (see the rejection of claim 3 above), wherein the plastic part extends at least partially over at least one of said claw poles (The plastic coil support extends over the inner flat surface of the lower claw pole).

In Reference to Claim 7

Fehrenbacher et al. as modified by Ohiwa et al. teach the mini-fan according to claim 6 (see the rejection of claim 6 above), wherein a claw pole is equipped with recesses into which plastic of the plastic part engages (The inner, annular recess of the claw pole holds the central portion of the plastic coil support).

In Reference to Claim 8

Fehrenbacher et al. teach the mini-fan according to claim 1 (see the rejection of claim 1 above), but do not teach the use of a tube made of soft ferromagnetic material, arranged inside the coil former.

Ohiwa et al. teach a similar electric motor with claw poles (5 and 6), where the bottom claw pole has an annular support or cylindrical central yoke (7) that extends into

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the center of the coil (8) and coil former. This central yoke is made from soft magnetic stainless steel (see paragraph [0031]). It would have been obvious to one of ordinary skill in the art at the time of invention to include a central yoke as taught by Ohiwa et al. in the apparatus of Fehrenbacher et al. in order to provide a magnetic return path for the flux between the poles of the magnet attached to the rotor (see paragraph [0058]).

In Reference to Claim 9

Fehrenbacher et al. as modified by Ohiwa et al. teach the mini-fan according to claim 8 (see the rejection of claim 8 above), wherein the tube of ferromagnetic material (center yokes (7) as taught by Ohiwa et al.) functions as a magnetic return path for the pole piece (see paragraph [0058]).

In Reference to Claim 10

Fehrenbacher et al. as modified by Ohiwa et al. teach the mini-fan according to claim 8 (see the rejection of claim 8 above), wherein the tube is equipped, near the carrier, with at least one recess that extends over a portion of the tube periphery (There is recess formed between the outside of the tube periphery and the inside of the outer yokes (22)) and through which plastic of the coil former extends into the interior of the tube (The plastic carrier would be placed in this recess, which is formed on the interior of the outer tube formed by the mating of the outer yokes).

In Reference to Claim 11

Fehrenbacher et al. as modified by Ohiwa et al. teach the mini-fan according to claim 10 (see the rejection of claim 10 above), wherein the plastic that extends into the interior of the tube is configured to serve as part of an axial bearing for journaling the

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permanent-magnet external rotor (The rotor would apply some radial force to the coil support through the claw poles and the central rotational shaft. Some of this force would be applied to the plastic carrier, and in that sense the carrier would serve as a bearing).

In Reference to Claim 20

Fehrenbacher et al. teach the mini-fan according to claim 1 (see the rejection of claim 1 above), wherein the stator winding is wound in bifilar fashion on the coil former (The annular coil (16) is wound around the coil support (50) and is bifilar, see column 3 lines 15-17). Fehrenbacher et al. do not teach that the coil is a two phase stator winding.

Ohiwa et al. teach a motor having two wires wound around it, where the wires are energized by two-phase electric currents (see paragraph [0027]). It would have been obvious to one of ordinary skill in the art at the time of invention to run the motor of Fehrenbacher et al. off of two-phase currents as taught by Ohiwa et al. since it is a well known manner for providing power to generate a changing magnetic field.

7. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ardelt et al. in view of U.S. Patent 6,213,718 to Hill et al. (Hill et al.).

In Reference to Claim 12

Ardelt et al. teach the mini-fan according to claim 1 (see the rejection of claim 1 above), wherein said fan housing (openings (90 and 58)) defines a generally circular air

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inlet opening (see figure 2). Ardelt et al. do not teach that a sealing ring of elastomeric material is provided adjacent a rim of said air inlet opening.

Hill et al. teach a fan (10) that has an annular removable shroud (150), see figure 5, that is made from a stretchable rubber material (see columns 4-5, lines 64-13). The shroud is slipped over the outer rim of the fan, and serves to either allow a fan grill to be attached to the fan, or to narrow the opening of the fan and better channel the airflow. It would have been obvious to one of ordinary skill in the art at the time of invention to include the annular, elastic shroud of Hill et al. on the inlet rim of the apparatus of Ardelt et al. to better channel the airflow into the fan, or to allow for a removable grill to be attached to the fan.

In Reference to Claim 13

Ardelt et al. as modified by Hill et al. teach the mini-fan according to claim 12 (see the rejection of claim 12 above), wherein the sealing ring is arranged on a circuit board (the first portion (66) of the circuit board (68) of Ardelt et al. serves as the annular air inlet hole for the fan apparatus) that is provided adjacent the air inlet opening (The annular shroud of Hill et al. would need to be slipped over the circuit board in order to be attached to the rim of the fan as taught by Hill et al.).

In Reference to Claim 14

Ardelt et al. as modified by Hill et al. teach the mini-fan according to claim 13 (see the rejection of claim 13 above), further comprising a temperature sensor (NTC resistor (86)), arranged on the circuit board (The NTC resistor is used as a temperature

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sensor and is attached to a thin strut (88) portion of the upper circuit board (66), see paragraphs [0024] and [0032]).

In Reference to Claim 15

Ardelt et al. as modified by Hill et al. teach the mini-fan according to claim 14 (see the rejection of claim 14 above), wherein the circuit board (68) comprises a strut (thin strut (88)) that extends into an airflow path defined by said air inlet opening and serves as a carrier for the temperature sensor (see figure 2, with temperature sensor (86)).

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fehrenbacher et al. in view of U.S. Patent 6,145,187 to Kliman (Kliman).

Fehrenbacher et al. teach the mini-fan according to claim 21 (see the rejection of claim 21 above), but does not teach that the at least one permanent magnet is implemented as a plastic-matrix flexible magnet.

Kliman teaches a similar claw pole stator where the magnets of the stator (44) are formed by suspending ferromagnetic particles in a plastic matrix. It would have been obvious to one of ordinary skill in the art at the time of invention to form the permanent magnets of Fehrenbacher et al. as plastic matrix magnets as taught by Kliman, since the plastic matrix would serve to protect the brittle magnet members and make them more durable.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA L. MYERS whose telephone number is (571)270-5059. The examiner can normally be reached on Monday through Friday, 8:30am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746

/JLM